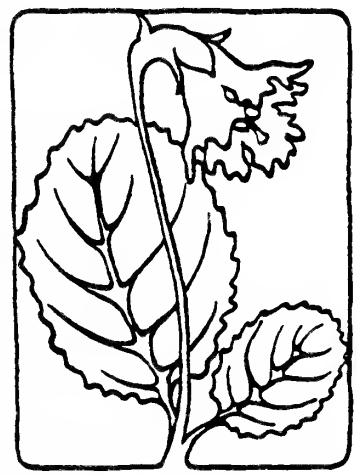
SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

SPRING 1988



MILLIE BLAHA, Editor

From the PRESIDENT'S DESK ..... Bill Verduin

I call to your attention a paragraph from Pleasant River by Dale Rex Coleman:

> "The landscape is neither a fortuity nor a permanent fixture created by fiat. It is a stupendous masterpiece sculptured from rock by blasting heat and icy cold, cut by the wind, molded by rain, and adorned with life. It is an unfinished masterpiece. The elements, having labored at it for millions of years, anticipate uninterrupted toil for millions more to come. It is the greatest of all privileges to behold their creation and to watch them at their work. Go out and look!"

Yes, go out and look. That is just what the Botany Club will be doing all spring, summer, and fall.

Look at the trees --- but enjoy the beauty of the forest, too.

Look at the flowers --- but raise your eyes often to drink in the splendor of the hillside.

Look at the stream as it hurries along polishing its rocks --- but enjoy, too, the beautiful music of flowing water.

Come out often and look with us --- it's one of the privileges granted those who have eyes to see.

Attention! Schedule changes

Because of a snowstorm, the January 8 program was cancelled. It has been rescheduled. Please ADD this program to your Jan.-June 1988 Outing Schedule.

Mar. 14 "IN SEARCH OF ORCHIDS" (Charles Moore 884-9614)

Not only has our speaker searched for orchids in Transylvania County, but he also has traveled to Alaska, the Yukon, Canada, the Great Lakes region, the West, the Midwest, and northern United States, exploring bogs and other habitats for these fascinating plants. His talk will be illustrated with color slides. Community Meeting Room, First Federal Savings and Loan, 2:00 p.m.

Please DELETE from your Jan. - June 1988 Outing Schedule the outing to Lake Jocassee on April 8, 1988. REPLACE it with this:

Apr. 8 PEARSON'S WOODS (Millie Pearson ~749-3171)

One of our most popular Spring wild flower pilgrimages is to Pearson's Woods with Millie Pearson, our gracious hostess. Spectacular best describes the masses of trilliums and many other wild flowers along a 2-mile trail which includes a steep climb in one area. Lunch will be eaten beside a rushing stream. Meet at Southgate Mall at 9:00 a.m. Join others at Millie Pearsons at 9:30 a.m.

WESTERN CAROLINA BOTANICAL CLUB

RECORDER'S REPORT for 1987

The Botanical Club scheduled 40 hikes this year with more than 680 attending, an average of 17 per hike. The Hardy Souls Hike and the Lake Jocassee trip were cancelled because of bad weather. The damage from the 1987 ice storm closed some trails, and we did some substituting during the early part of the season. We again had to cancel our trip to Big Butt and went to Bear Pen Gap instead, a happy choice.

There were 10 indoor meetings, including our annual meeting. Over 380 attended the indoor meetings, an average of almost 40 per meeting. We had adequate turnouts at our three workdays, Millie Pearson's, Holmes Educational State Forest and the University Botanical Gardens in Asheville. Our three workshops drew 8 people per workshop.

If you had gone on every hike this year you would have added 4,000 miles to your odometer. You would have had an overnight at Snowbird Lodge, at Franklin, at Cullowhee and at Cosby.

The weather was kinder to us and we had many fine days for our outings. The Club continued its love affair with the Blue Ridge Parkway. We went East (North) with Miles Peelle in July, but mostly we found ourselves going west again and again. We found our way to Heintooga, Balsam Gap and Soco Gap. We began to identify plants by mile posts on the Parkway, and it soon became evident that the Botanical Club overlooks few overlooks. We found saxifrage on rock faces. We took short hikes off the parkway to see old stands of trees and displays of orange-fringed orchids. We searched the ditches for sundews. We found ladies' tresses and gentians where they had survived the Parkway's mowers.

We welcomed Bill Verduin back, and he and Ben Tullar did more than their share in leading us on some special trips. We appreciated the hospitality at Foothills Equestrian Nature Center (FENCE) where Ivan Kuster took us in March and again in September.

Asa Gray called botany "the amiable science". I think of that when I think of our group. Our leaders try, whenever possible, to scout hikes for us, and so to be able to point out to us the unusual and uncommon plants we see. We can bear in mind the broad definition of botany as the study of the parts and functions of plants, and their habitats as well as their classification. A birder member in the Club once described herself as not a "lister". As recorder I must be a lister and it is useful to the serious beginner. But remembering always Asa Gray's "amiable science" we are free to learn at whatever speed and depth we want and still can enjoy the variety of programs offered by the Club.

It is easy to get discouraged when faced with the names of all the plants in this rich botanical area. Learning the identity of plants by name is a challenge, and is rewarding. But for those of you who get discouraged, I share with you a few heretical lines I wrote in my field book the first year I became a member of the Botanical Club. The lines are attributed to Shakespeare and go as follows:

"Those who give a name to every fixed star
Have no more profit from their shining nights
Than those that walk and know not what they are".

--ANNE ULINSKI

Yellowwood

YELLOWWOOD
Flowering twig, x ¼.

To discover that the familiar name of a plant has been changed is very frustrating,until one discovers that the culprit behind these changes is the plant taxonomist.

The plant taxonomist is a specialist who studies plant identification (what the plant is called), classification (what its relationship is to other plants), and nomenclature (what a plant's correct name is, based on the name's history according to a specific code of nomenclature).

In May 1987 some of us were introduced to a plant's name change. On a Botany Club outing to the Jore Mountain area in Macon County, Dr. Dan Pittillo, our leader, had taken us to an area where the rare yellowwood tree grows. Unfortunately this member of the Pea Family was not in bloom. It was a disappointment not to see its clusters of showy, fragrant,white butterfly-like flowers.

Most of us knew the scientific name of this tree as Cladastris lutea, the name by which it had been known for about 100 years. When Dr. Pittillo referred to it as Cladastris kentukea, some of us had quizzical expressions on our faces. He promptly explained that the name had been changed. An older name had surface and had priority.

Yellowwood was first described in 1813 by Andre Michaux's son, Francois, who called it Virgilia lutea. He believed it to be similar to other members of the African genus Virgilia.

In 1825, Rafinesque separated the North American plants from the genus Virgilia and described them as a new genus which he named Cladastris. He rejected Michaux's epithet of lutea and gave it another name. Ultimately the name Cladastris lutea was accepted and commonly used.

In 1971, a botanist named Rudd was studying the legume family and found a publication that preceded Michaux's 1813 publication by two years. Georges Louis Marie Dumont de Courset (1746-1824) named it Sophora kentukea.

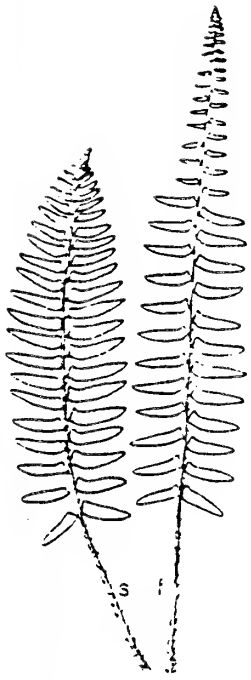
And thus the specific epithet kentukea is the earliest known for this tree. It is now known as Cladastris kentukea (Dum-Cour) Rudd, indicating that Dumont de Courset was the first person to describe it and Rudd later was responsible for the new name.

Plant names, because they are assigned by man, are artificial, so one need not be too disturbed when they are changed.

More important than being able to recite the name of a plant is knowing something about its living attributes, its characteristics and its preferred habitat.

--MILLIE BLAHA

HOW ABOUT SOME LATE WINTER *Ferning?*



Christmas Fern

In winter we often think of studying tree buds and twigs, of investigating seed types or identifying remnants of dried weeds and wild flowers. But ferns? Who thinks of ferns in winter?

Yet winter and early spring are fine times to see ferns -- evergreen ferns. Their greens stand out beautifully against neutral backgrounds, though frond positions may differ from those of summer.

After the grand mass of summer ferns dies in autumn, a surprising number of ferns stay green. The list below indicates some of the more common species we would encounter on western North Carolina trails.

CHRISTMAS FERN (Polystichum acrostichoides) is the most common and obvious evergreen fern. Its glossy, dark fronds lie nearly flat in winter. Its early use as a holiday evergreen gave it its name.

EBONY SPLEENWORT (Asplenium platyneuron) has narrow (3/4"-1¼") fronds which hide among dried weeds of open meadows and shrubby edges. Once one "gets an eye" for them, the reaction is, "There are so many!"

COMMON POLYPODY (Polypodium virginianum) caps large woodland rocks with a dense, low, dark green layer. Its fronds curl beautifully on a longitudinal line when conditions become icy.

MARGINAL WOODFERN (Dryopteris marginalis) can be spotted easily in rich woodlands as a large fern dangling from rocky crevices. If growing on banks or level soil, its winter fronds lie flat to the ground. Remnants of the marginal "fruit dots" (sori) often cling to the backs of the leaflets, making identification easy.

GRAPEFERN (Botrychium dissectum) is one of many grapeferns, most of which, like the common rattlesnake fern ((B. virginianum), are deciduous. But B. dissectum is evergreen, though often its single frond is brown-green or reddish brown in winter. It's always a delight to come across this lively-looking plant on the woodland floor, when all about it looks so dead.

MOUNTAIN SPLEENWORT (Asplenium montanum) can be identified as much by its distinctive habitat as by its appearance. It thrives in tight crevices under rocky overhangs, and one marvels at its survival in such adverse-looking circumstances. A delightful miniature, its fronds are only 2-5" long.

WALKING FERN (Camptosaurus rhizophyllus) is often thought of with CLIMBING FERN Lygodium palmatum) because of their leggy names and because each is so typically unfernlike. Walking fern, with narrow, undivided, almost arrow-like fronds mats woodland rocks, while climbing fern, with palm-shaped leaflets, climbs like a vine on surrounding vegetation, often in semishade.

INTERMEDIATE WOODFERN (Dryopteris intermedia) thrives in the high elevation forests of yellow birch, spruce, and fir. Finely divided, its daintiness makes it look as if it should be fragile and deciduous, but it stays bright green all winter.

Several seldom-seen ferns could be added to this evergreen fern list, and further north many more could join them.

Next time you're trail walking, how about some late winter-early spring ferning?

--BARBARA HALLOWELL

The Botany Club is *15* years old !

At the January 22, 1988 Annual Meeting, the following officers were elected:

PRESIDENT: Bill Verduin
VICE PRESIDENT: Louise Foresman
SECRETARY: Charlotte Carman
TREASURER: John Saby
RECORDER: Anne Ulinski

The Honors Committee recognized two members:

LOUISE FORESMAN was honored with a Life Membership in the Western Carolina Botanical Club for her years of service to the Club as plant recorder, as a member of the Holmes Educational State Forest plant study committee, as vice president, as chairman of various committees, and as a dependable worker.

ELTON J. HANSENS was awarded a membership in the Second Wind Hall of Fame not only for his service to the Botany Club but also his service to the community. The Second Wind Hall of Fame recognizes and emphasizes activities after retirement using talents developed before and after retirement.

Margaret Kuhn, Membership Chairman, reported that, as of December 31, 1987, the membership consisted of 141 families with 235 individual members.

Margaret Kuhn, acting Treasurer reported that deposits during 1987 totaled $1,070.00, expenditures totaled $1,071.49. The balance as of Dec. 31, 1987 was $294.54.

Elton Hansens, Community Services Chairman, reported that members contributed approximately 110 hours on community service projects.

Dick Smith, Chairman of the Buck Springs Lodge Nature Trail on the Blue Ridge Parkway, reported that progress on the proposed trail continues to be stalled while the National Park Service struggles with the problem of when to build the new housing for Pisgah Inn employees.

Millie Blaha, Chairman of the Holmes Educational State Forest Plant Study, reported that 394½ hours were spent on the study portion of the Forest Demonstration Trail observing plants in bloom.

Bill Verduin, Community Relations Chairman, reported that gifts of $75 each were made to N.C. Nature Conservancy, N.C. Botanical Gardens at Asheville, and Southern Appalachian Highlands Conservancy (to preserve Roan Mountain).

Grace Rice, Chairman of the Library Display Committee, reported on the display in the Hendersonville County Public Library during the month of April.

A telephone tree has been devised whereby all members can be notified in case of emergency or cancellation or change in meeting dates or places.

Dick Smith's "Look Again" page in Shortia is being assembled into a portfolio.

The membership voted to keep dues at $8.00 per year per family

After a delicious potluck luncheon of food provided by the Botany Club members, Barbara Hallowell, Gladys Mulvey, and Harry Logan who were members in 1973 when the Club was formed and who have continued their memberships for 15 years, reminisced about the Club's beginning. Other 1973 members who were unable to be present and who continue to be members are Peggy Camenzind, Nan Morrow, and Pat and Gordon Tool[illegible]. Four past presidents -- Augie Kehr, Bruce Leech (who joined the Club late in 1973), Dick Smith, and Elton Hansens -- shared their recollections of the Club.

It was a Happy 15th Birthday for the Botany Club!

LOOK AGAIN !

Some of our most attractive plants not only are restricted to the southern mountains but within that narrow range have such limited distributions that the likelihood of seeing them may depend largely upon chance.

This is exemplified by the endemic Lily of the Valley (Convallaria montana), which occurs locally in the Appalachian and Blue Ridge provinces of only four states. It may possibly be a variety of the European C. majalis, which furnished the stock from which we have cultivated the familiar, fragrant Lilies of the Valley for many years, but whatever the nomenclature there are marked differences. The native plants are considerably larger, and the leaves overtop the flowers to a greater degree. Also, the individuals are spaced apart and do not crowd each other in dense, ground-covering colonies as do those of the typical C. majalis.

CONVALLARIA MONTANA

The name "Wild Lily of the Valley" is often applied to Maianthemum canadense, thereby causing confusion which could easily be avoided by using the literal translation of its scientific name: "Canada Mayflower". Aside from this, it cannot be confounded with Convallaria. It is of much smaller stature, and the leaves are alternate and the flowering stalk terminal, instead of all arising from the base. Most unusual for a member of the Lily Family is the fact that its floral parts are in multiples of two rather than three.

MAIANTHEMUM CANADENSE

Dick Smith

S H O R T I A

Vol. X, No. 1 Spring 1988

A quarterly publication of the WESTERN CAROLINA BOTANICAL CLUB

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S H O R T I A

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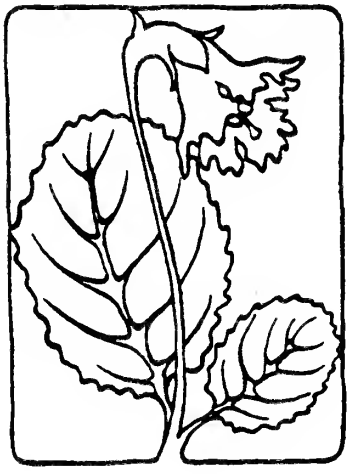
FIRST CLASS

SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

SUMMER 1988



DOROTHY RATHMANN, Editor

FROM THE PRESIDENT'S DESK.....Bill Verduin

It is with deep regret that I must announce the resignation of Millie Blaha as Editor of SHORTIA. Her all too brief term as Editor gave abundant evidence of her talent as editor and writer. And her willingness to serve as both President and Editor concurrently bespeaks a deep devotion to the Botanical Club. For all you have done, Millie, many, many thanks from all your friends in the Club.

And on the other hand, as the saying goes, it is with great pleasure that we welcome back Dorothy Rathmann as Editor of SHORTIA. Dorothy assisted Helen Turner for many years and then served as Editor for a year upon Helen's retirement, so she comes to the job "with experience and proven ability." We are grateful for her willingness to serve the Club in this capacity and look forward to many good issues of SHORTIA.

Dorothy would be quick to add that SHORTIA will be only as good as the members make it. She welcomes suggestions and contributions. Do give her ideas for articles or features you would like to see in SHORTIA -- and write something yourself that you think worth sharing with the Club.

Reminder -- as if any of us really needs one -- at least not about the day at Holmes, June 24! Everybody come! Bring food and a healthy appetite -- leave your diet at home. There will be hikes in the morning and lots of time for fellowship. Our Club seems just as adept at finding topics for conversation as for finding plants in bloom. Fun for all.

Anyone planning to spend some time in New England this summer may want to consult the 1988 Schedule of Programs and Events put out by the New England Wild Flower Society. Looks like many interesting one and three day trips similar to our outings but in a variety of ecosystems unlike ours.

HELP!.....Elton Hansens

The WCBC slides and script on Spring Flowers were loaned to someone and have not been returned. This is the duplicate set of the slides presented to Holmes Educational State Forest several years ago. I erred in making no record of the borrower. Will the person who has the slides please contact me?

HAZELNUT SEEDS NEEDED.....Augie Kehr

Eastern Filbert Blight, caused by the fungus Anisogramma Anomala, threatens the hazelnut industry in Oregon's Willamette Valley where 99% of the U.S. crop is produced. The disease is similar in many respects to Chinese Chestnut blight and is just as devastating.

Seeds from Corylus americana (American hazelnut) and Corylus cornuta (beaked hazelnut) are needed -- 25 seeds from each of 3 shrubs per location should be collected. Seedlings will be grown from these.

When nuts are formed on the hazelnut shrubs late this summer, if you can collect them, please send them to: Shawn A. Mehlenbacher, Dept. of Horticulture, College of Agriculture Sciences, Corvallis, Oregon 97331-2911.

MEMORIAL TO HARVEY KROUSE.....Elton Hansens

Verna Krouse has presented the following books to the Henderson County Public Library in memory of her husband:

- Luer, Carlyle A. THE NATIVE ORCHIDS OF THE UNITED STATES AND CANADA. (A beautiful and detailed treatment of the subject.)
- Rost, Thomas L., M. G. Barbour, R. M. Thornton, T. E. Weier, and C. R. Stocking. BOTANY, A BRIEF INTRODUCTION TO PLANT BIOLOGY.
- Justice, William S., and C. Ritchie Bell. WILD FLOWERS OF NORTH CAROLINA.
- Newcomb, Lawrence. NEWCOMB'S WILDFLOWER GUIDE. (A very popular book with WCBC members.)
- Miller, Orson M., Jr. MUSHROOMS OF NORTH AMERICA.
- Headstrom, Richard. NATURE DISCOVERIES WITH A HAND LENS.
- Elliot, John M. BOTANY. (Paper-back; 2 copies.)

We appreciate Verna's generosity and would like to see others enlarge Botany holdings in the Library.

A QUIET WALK.....Elton Hansens

Can you imagine 25 members of WCBC walking a trail for twenty minutes without a word being spoken? Such was the wonder of the "quiet walkway" on the Cades Cove Road in the Smokies. When we started the trail our leader requested that we try a new experience and walk quietly without a word and look and listen -- listen to the voices of the birds and the stream and enjoy the flowers and the trees. This we did and as we walked the trail, even our footsteps became silent and we revelled in the peace and calm, and in the beauty of the "quiet walk." We must do this again in the right place and at the right time.

The Smokies trip was at the peak of the Spring floral display both in kinds of flowers and in the sheer numbers of many species. Bill Verduin certainly selected the best dates and places for our trip; Cosby, Little River Trail, Little River Road, Chestnut Top Trail, and Chimney Tops Nature Trail revealed nearly 90 species in bloom. Cades Cove was an interesting historical place; on an evening trip we saw 200 to 300 deer. Bill Verduin and Elton Hansens were co-leaders.

ABBREVIATED VERSION OF CADE'S COVE OVERNIGHT.....Ruth Mack

Leadership/Organization: Flawless!
Area visited: **Awesome!**
Weather: Perfect!
Flowers: Spectacular! Super-abundant!
Lodging: Spacious (each with refrigerator)!
Participants: Enthusiastic!

If you think I had a **fantastic** time, you're right!

THE INGENIOUS PLANT: Methods of Propagation.....Bessie Sinish

The world in all seasons is clothed with flowers -- the result of propagation. Plants perpetuate themselves and multiply in two ways: sexual (by seeds and some kinds of spores) and asexual (by vegetative parts). Sequencing of events is under genetic control with the DNA molecule in the cell nucleus acting as a sort of "Biological Clock" governing the events of sprouting, bloooming, and propagation.

Plants may be annuals, biennials or perennials. Most **annuals** germinate from seeds, blossom, produce seeds and, then, completely die down in one growing season. A **biennial**, in the first year usually, produces a rosette of leaves and a fleshy root which acts as a reserve for over-wintering; in the second year it flowers and then dies out completely. **Perennials** under normal conditions live through many growing seasons and produce seeds each year; they can survive the winter on food stored in specialized underground stems.

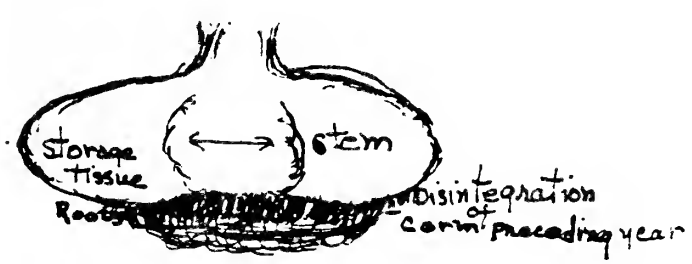
The greatest spendthrift of all times is Nature, producing thousands of seeds -- yet only a few germinate having landed on spots compatible with their needs. Mature seeds are dormant and contain enough stored food for sprouting. Depending on the species and the immediate environment, seeds remain viable for a few months to many years. Dormancy ends (sprouting starts) under conditions of favorable moisture and temperature when other requirements such as light, the removal of chemical inhibitors and rupture of the seed coat have been met.

Nature in her ingenious way ensures continuous growth of some plants by underground stems/roots. These anchor the plant in the soil, absorb water and minerals, conduct nutrients to the upper stem and leaves, and may serve as food storage receptacles for over-wintering. Such stems/roots may be rhizomes, tubers, corms, bulbs, stolons, tillers, or suckers.

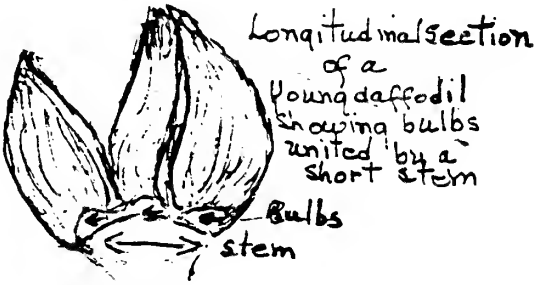
RHIZOME

TUBER

The **rhizome** of plants such as iris, wild ginger, Solomon's seal and fern is an elongated underground stem; stems grow from the upper side and roots grow from below. Many trilliums have a short rhizome and grow from the tip. The **tuber** is an enlarged portion of a slender rhizome. It has small scale-like leaves (tiny buds) known as eyes or nodes that produce new plants; these eyes or nodes are nearly surrounded by starch. Potatoes, Jerusalem artichoke, heliantheses, tuberous begonias and Boston fern are examples.



CORM



BULB

A short, solid vertical enlarged underground stem in which food is stored is called a **corm**; examples are gladiolus, crocuses, and Jack-in-the-pulpit. A **bulb** consists of a short conical stem bearing several concentric layers of fleshy modified leaves (as in an onion or daffodil) and is essentially a large bud containing considerable stored food.

STOLON

Some plants propagate by stems running along the surface of the ground such as **stolons** or **tillers**. Strawberries and Bermuda grass are in the first category. As the stolon creeps along the ground a node forms from which shoots and roots develop; in the Bermuda grass runner this takes place at every node while in the strawberry runner it occurs at every other node. In tillering, a stem grows laterally and roots at a joint; here a lateral bud forms at the base of the node as, for example, in grasses and cereals. Another type of runner is a **sucker** which runs underground; it has stem-like roots with nodes that spread out around the main plant and produce many upright plants such as a clump of knotweed.

There are three primary factors for successful propagation: water, energy, and light. All are essential for normal growth and development. The amount of water that a growing plant requires is astonishing. A young oak tree scarcely thirty feet tall can lose up to thirty gallons of water in a single hot summer day. This has to be made up from water in the soil, drawn into the tree by roots. Multiply this by the needs of all our vegetation!

Energy within the cells is derived from respiration -- the oxidation of food (for example, the sugar glucose) within the cells of living organisms, plant or animal. The starch stored around embryos in seeds or in underground stems is a polymer of glucose which is converted by enzymes back to glucose needed for growth and development.

Similarly, light is necessary as one stimulus for the termination of dormancy and through the process of photosynthesis in green plant tissues, for the formation of glucose/starch.

Also necessary for the development of a plant are hormones which act in regulating growth, cell division, stem elongation, and ripening processes. Environment is involved in maintaining genetic continuity as each species utilizes a specific part of its environment, its niche. The plant whose seeds are scattered does not always propagate "true" to the parent plant, while the plant which propagates by vegetative parts usually assures its genetic continuity.

Admittedly, the word "ingenious" -- meaning inventive, creative, inspired -- was originated by man who applied it to himself. Man has a nervous system, marvelous muscle coordination and the ability to reason but has never been able to manufacture the raw materials upon which his life depends. The vegetable kingdom, which existed long before man, is the source of oxygen, sugar, cellulose and many other vital products and has the means to produce and reproduce these materials by mechanisms not yet fully understood. To me, plants deserve the designation "ingenious."

VIOLETS .....Anne Ulinski, Recorder

For many of us spring means violets, the plants we admire but hesitate to identify. I've noticed this spring that although some are trying to identify the plants, others are throwing up their hands and saying," Even the experts don't try".

Suppose you could identify 14 species of violets? Would you consider that a good step (maybe a final step!) in violet identification? Here is a list of 14 found in our area with a system for naming them. Concentrate on two observations: (1) Color and (2) Whether the leaves and flowers are on the same stalk, or whether the leaves and flowers are on separate stalks. Except for the uncommon three-parted violet (Viola tripartita) we have identified all of these on our outings this spring.

YELLOW VIOLETS

Leaves and flowers on the same stalk:

Smooth yellow	V. eriocarpa var. leiocarpa* (Leaves ovate)
Halberd leaf	V. hastata (Leaves triangular, taper pointed)
Three-parted	V. tripartita (Leaves divided into 3 parts, not common)

Leaves and flowers on separate stalks (Only one in our area!):

Early yellow	V. rotundifolia (Leaves round)

WHITE VIOLETS

Leaves and flowers on the same stalk:

Canada	V. canadensis (Flowers white, often purple on back, yellow bearded)
Confederate	V. papilionacea var.priceana (Grey white flowers)
Creamy	V. stricta (Flowers creamy, lower petal purple veined)
Field pansy	V. rafinesquii (Small bluish white flowers)

Leaves and flowers on separate stalks:

Primrose-leaved	V. primulifolia (Small flowers, egg-shaped oblong leaves)
Sweet white	V. blanda (Small flowers, rounded heart-shaped leaves)
White form/common blue	V. papilionaceae (Large flowers, heart-shaped leaves)

PURPLE/BLUE VIOLETS

Leaves and flowers on the same stalk:

Long-spurred	V. rostrata (Spurred petal 1/2 inch long)

Leaves and flowers on separate stalks:

Bird's-foot**	V. pedata (Leaf blades deeply cleft, dry places)
Swamp blue	V. cucullata (Flowers overtop leaves, wet places)

There are other purple/blue violets with leaves and flowers on separate stalks found in our area, but these tend to hybridize and are more difficult to identify. Ricketts writes: "It has been said there are no true species in this group, but that all form one vast and heterogeneous species."

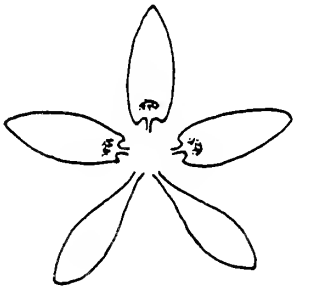
* Formerly called V. pensylvanica var. leiocarpa
** Sometimes called the queen of all violets

Note: The species shown above all grow in our area according to "Manual of the Vascular Flora of the Carolinas", Radford, Ahles and Bell, 1968.

LOOK AGAIN !

Numbering about 300 species, the Saxifrages encircle the northern hemisphere inhabiting for the most part cold and mountainous regions. Here in the Southern Appalachians we can lay exclusive claim to a couple of handsome members of the genus.

• Mountain Saxifrage (Saxifraga michauxii) is probably the more familiar of the two. It grows from cracks in rocky ledges and on seepage slopes, but also spreads profusely on some grassy balds. Each plant emerges from a rosette of coarsely-toothed basal leaves which often assume a rich crimson hue. The myriad flowers, borne in a large diffuse panicle, form a cloud of misty white when seen from a little distance. They must, however, be examined closely with a hand lens to be fully appreciated--and to be distinguished from our other species. As shown by this diagram, they are zygomorphic (irregular) in form: the upper three petals are clawed and bear a yellowish gland near the base, whereas the lower two are spatulate and unmarked. The delicate beauty of these blossoms is enhanced by the ten stamens radiating from the center, each of which is tipped with a brick-red ball-shaped anther.



The other species is S. micranthidifolia, called Brook Saxifrage because it is so often found near running water. One of its favorite stances is on a moss-covered boulder in the middle of a tumbling mountain stream, another is among spray-drenched rocks at the base of a waterfall. Brook Saxifrage is a somewhat taller plant with more elongated leaves. The flowers are similar to those of S. michauxii but with the diagnostically importance of being actinomorphic, or regular, having all five petals clawed, yellow-spotted, and of the same shape.

Much more rare in the western North Carolina mountains are S. careyana (another southern endemic) and Early Saxifrage (S. virginiensis), which is common throughout most of the piedmont province.

Dick Smith

S H O R T I A

Vol. X, No. 2 Summer 1988

A quarterly publication of the Western Carolina Botanical Club

Editor: Dorothy Rathmann Distribution: Frances Gadd

Please submit contributions for next issue by August 1 to:
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Carolina Village Box 23
Hendersonville, NC 28739

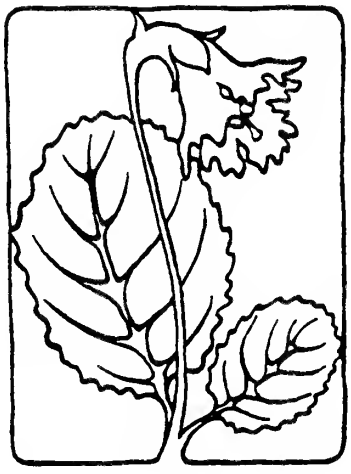
SHORTIA
c/o Frances Gadd
218 Pheasant Run
Hendersonville, NC 28739

Attachment = additions, corrections in 1988 membership list

SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

AUTUMN 1988



DOROTHY RATHMANN, Editor

OFFICERS

President:	Bill Verduin	Treasurer:	John Saby
Vice President:	Louise Foresman	Recorder:	Anne Ulinski
Secretary:	Charlotte Carman		

FROM THE PRESIDENT'S DESK.....Bill Verduin

I enjoy reading and I'm sure most of you do, too. Sometimes it's the story that holds the interest; sometimes, in nonfiction, we are amazed at truths that are, indeed, stranger than fiction. These discoveries come with surprising frequency when reading in the natural sciences.

But I'm ever on the alert for still another source of pleasure in the written word. Every now and then I come across a choice selection of words and phrases which so beautifully express my own deep feelings -- feelings which I just haven't been quite able to put into words. Such a tidbit I found recently in writings by Gwen Frostic -- words so simple, a thought so profound. Read it slowly, several times.

Let's wander here and there - - -
like leaves floating in the autumn air
and look at common little things - - -
stones on the beach - - -
flowers turning into berries - - -
- - - from the winds we'll catch a bit
of that wondrous feeling that comes - - -
- - - not from seeing - - -
but from being part of nature....

VERDUIN HALL NAMED AT KANUGA CONFERENCES.....Elton Hansens

Bill and Evelyn Verduin were surprised people when they were honored at Kanuga Conferences on June 29 with the naming of Verduin Hall at the Boys and Girls Camp. Bill envisioned and built this camp when he was on the staff of Kanuga Conferences from 1950 to 1963. At the close of the 1988 Annual meeting of the Board of Trustees, Bill and Evelyn were presented with a hand-lettered citation honoring them as special people, dedicated contributors to the Conferences. The meeting adjourned for unveiling of the appropriate sign at the entrance to **Verduin Hall.** We congratulate Bill and Evelyn.

1988 MEMBERSHIP LIST

Hendersonville 28739 unless otherwise noted

ADDITIONS (* NEW MEMBER)

*Devitt, Clayton F. & Barbara M.,
18 Hillendale Road, Asheville, NC 28805.....251-1486
Galda, Odessa, 601 Carolina Drive, Tryon, NC 28782.....859-6093
Rieber, Jesse P. & Agnes, 575 Rutledge Drive.....692-9586
410 SW Natura Ave., Deerfield Beach, FL 33441.....305-428-9685

NEW ADDRESSES

Canfield, Earl & Margaret, Carolina Village Box 197 692-5118
Keith, Tom & Marion, Carolina Village Box 125 692-4833

SALAD SERVING FORK MISSING

For the Covered Dish Lunch at Holmes State Forest on June 24, Ruth Mack brought a salad and her favorite serving set. Somehow, the fork "ran away" without the spoon and could not be found after the luncheon. If you know the fork's whereabouts, please call Ruth (685-8720). She misses it and will welcome it home!

NEW INSECT COURSE

Elton Hansens will teach a new course titled **INSECTS AND THE ENVIRONMENT** at Blue Ridge Community College from Sept. 27 thru Nov. 15 (8 weeks). The class will meet Tuesdays from 1:00 to 4:00 PM. Color slides, lectures, discussion and field trips will be used in this imaginative course on how insects cope with their environment through specialized habits, structure and adaptations. A wide range of topics will be introduced and questions answered such as: "How do ants find the kitchen cupboard? Can moths see in the dark? Why do mosquitoes always bite me?" **Join us.**

FRED TAYLOR TO SPEAK ON NATURE AND LITERATURE ..... Larry Kenyon

Interested in learning more about the relationship of nature and literature? Plan to attend the Friends of the Library luncheon to hear Fred Taylor talk on this interesting subject. The program will be held Thursday, September 15 at 12 Noon, at Bonclarken. Reservations must be made by September 12. Pick up a reservation form at the library or call Larry Kenyon (697-1835).

Many of us know Fred Taylor as a fellow hiker and teacher. He is a graduate of Carleton College and Union Theological Seminary and is currently working on a PhD from Union Graduate school. His outdoor experiences range from the Pacific Northwest, where he was born, to the Southern Appalachians, which he now calls home. "I can't think of a better place to focus on my goal of studying nature and all that has been written about it," he said. "These mountains, so full of diversity of plant and animal life, have so much to teach, and I'm eagerly learning all I can. Botanical Club hikes have been a major source of my knowledge about the natural history of this area." Let's give Fred our support.

FROM THE EDITOR ..... Dorothy Rathmann

In this issue, you'll find articles by Bill Verduin and Elton Hansens which might be classed as **MUSINGS** — reflections on a nature theme. Other WCBC members have asked if I'd like them to submit items from their reading -- or writing. The answer is **yes.** Of course, there's not space for everything and I know how to "use a blue pencil." But with that caveat, I do hope you will give me or talk with me about items you think could be used in SHORTIA.

SWITZERLAND, ANYONE? ..... Larry Kenyon

Several WCBC members have spoken to me about traveling and botanizing in Switzerland. I have been there many times and can put you in touch with a program that provides an apartment in a small town plus support services at a reasonable price. Not a tour, but a Swiss Untour. Let me know if I can help. You should start planning now for 1989.

LET'S TAKE A WALK ..... Elton Hansens

All of us in the WCBC look at flowers as wondrous things but the wonder we see varies from person to person. Some see flowers as things of beauty. They enjoy the harmony of colors and texture and form; the interplay of light and shadow; the majesty of trees; and the ability of mosses and lichens to live on fallen trees or bare rocks. And then there are those who want to know the name of everything and not only the common name but also the scientific name including subspecies and variety if they exist.

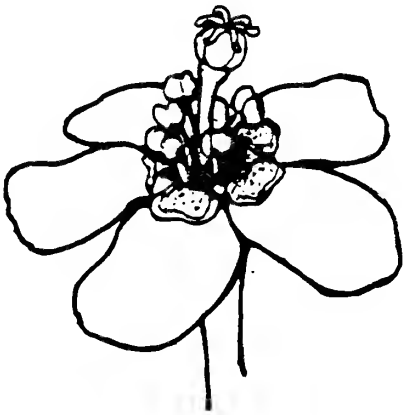
Some of us hike looking for new things or the old in new places. We see interrelationships and even know what plants we may enjoy in the deep woods, in a bog, a salt marsh or along a river bank. We know which old friends live together and which are the extroverts that show up in all sorts of places.

Then there are the odd balls, and I am one of them, who see the flowers and their relationships but who also look for the insects, good and bad, and evidence of their presence---leaves tied together with silk, or folded, or chewed in certain ways. We look for the crab spiders and ambush bugs stalking their prey in the blossoms of goldenrod and other flowers.

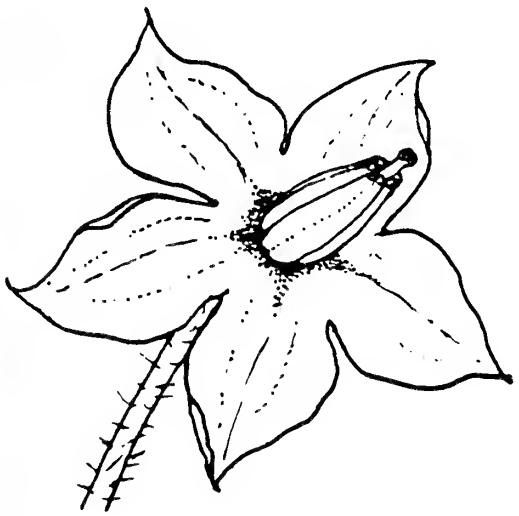
Other "plant freaks" want to know how the flower is put together and why. They tell you that some flowers are not flowers at all but only call attention to the true flowers and that other flowers are really a whole bouquet of perhaps several hundred flowers.

Today let's take a walk and look closer than usual at a few friends. On this misty morning on the Parkway let's walk along the roadside and then venture into more secluded woodland and perhaps even explore a mountain stream or waterfall. Let's go!

Look! Here is a plant that always gives me trouble. I never can remember its common name or its scientific name but I do know that the plant has milky juice--perhaps it's a milkweed or a euphorbia. Both have milky juice. That gives me a clew and I remember that we are looking at flowering spurge. Newcomb p. 202 tells me it is Euphorbia corollata and gives a very neat description: "White flowers 1/4 " wide with 5 roundish petal-like parts (actually bracts surrounding the tiny flowers) in an open cluster." Use your hand lens. You will see the 5 showy bracts with a nectar gland at the base of each. The tiny flowers in the center consist of a single large pistillate (female) flower surrounded by 2 to 15 small staminate (male) flowers. Thus that simple white flower on close examination is a cluster of tiny incomplete flowers surrounded by insect attracting bracts and nectar glands. (See illustration above).

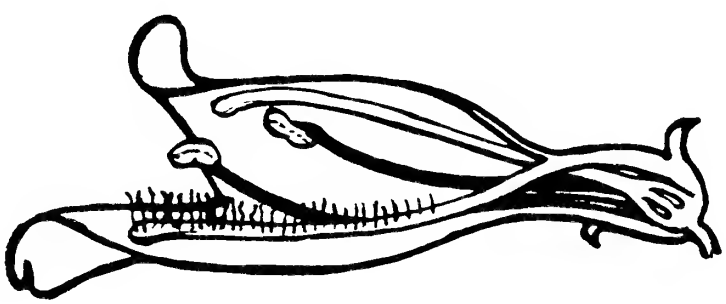


That plant with the white flower about an inch across and with a yellow center has some interesting features. I'll pick one so we can look at it closely. Ouch! The ouch was for a good reason. Look at the spines on the stem, on the top and bottom of the leaves and even on the buds. Our specimen is the Horse Nettle (Solanum carolinense), and is fairly common on roadsides and in weedy fields.



Let's look at the flower which may be either white or purple. From the back we see the 5 pointed sepals extending from a cup-like base. The petals are joined into a 5-pointed star and surround the most interesting feature of the flower, the 5 bright yellow stamens. These are elongate, paired pollen sacs. Your hand lens will reveal a pore at the tip of each sac. These "salt-shakers" distribute the pollen when insects visit the flower. These sacs (anthers), then, are specialized release mechanisms to assure that pollen is deposited on an insect for transfer to another flower. On the other hand the stigma is a green knob that extends beyond the center of the stamens and is in the perfect position to receive pollen.

Over there, those tubular flowers about an inch long and pale to deep purple colored are the Gray Beard-tongue, Pentstemon canescens, Note the gray downy stems. The prominent corolla is narrow and attached at the 5-pointed calyx. The corolla flares out near the middle into a large throat with 2 lobes above and 3 larger lobes beneath. The corolla is readily pulled off and the style is left behind attached to the ovary and persists even on the mature fruit. We will find the tongue by pulling the corolla apart.



First we see 2 pairs of fertile stamens attached on the corolla near its base. Then we note another long filament with long hairs on its upper side and extending to the lip of the flower. This sterile stamen or staminode is the beard-tongue of the common name. The remarkable structure apparently functions to ensure that bees encounter the fertile stamens and stigma and it may be somewhat attractive to the insects. I think more beauty exists inside the flower than outside.

There's another interesting plant called spiderwort (Tradescantia virginiana). When you pick a flower you will feel a mucilaginous or slimy sap. The flower is fairly large and very beautiful but you must look closely with a lens to appreciate it. That's all I have to say!

Chimney Rock Park ..... ANNE ULINSKI, recorder

Ptelea trifoliata

It was a very special day for the Botanical Club - May 13, 1988 - when we went to Chimney Rock Park as the guests of Elisabeth Feil, Park naturalist. Elisabeth recently completed her Masters Degree at UNCC and her thesis was based on the floristics and vegetative patterns of Chimney Rock Park. She shared her extensive knowledge of the Park with us and I was fortunate to be able to record much of it. For all those who could not be there, and for those who gave up their places near Elisabeth to me so I could make the recording, here are some of the highlights of the outing.

The massive rock faces at Chimney Rock Park are composed of Henderson Gneiss with an overlay of broken mica schist. The Gneiss takes up little water so what water there is has to come from the rain water running over the top. The mica schist acts as a reservoir and releases water slowly with the result there is constant seepage over the lower rocks. This constant seepage together with the northern exposure and the steepness of the rocks which keeps the sunshine out, creates a cold micro-climate.

On these northern rock faces we saw two unusual plants: the Deerhair Bulrush, (Scirpus cespitosus var. callosus) listed as rare by Radford* and the Biltmore Sedge (Carex biltmoreana). The Deerhair Rush, according to Elisabeth, is a truly arctic tundra plant found in Alaska and Siberia. The Biltmore Sedge, also listed as rare by Radford, is entirely dependent on the cold micro-climate found on the rock face. Another unusual plant is the Fir Club Moss (Lycopodium selago) which is found at Chimney Rock at about 1800 feet, and has never been recorded at that low an altitude in the southern Appalachians. This lycopodium forms a hybrid with Shining Club Moss, and this hybrid is found in the forest at Chimney Rock and is as yet unnamed.

At many places along the trails we saw the Wafer Ash (Ptelea trifoliata). We seldom see this three-leaved shrub and we were fortunate on this day to see it in both flower and seed.

Other unusual plants we saw in bloom were Carey's Saxifrage (Saxifraga careyana), and the Northern Downy Violet (Viola fimbriatula). We saw Spike Moss (Selaginella apoda), Blunt-lobed Woodsia (Woodsia obtusa), Purple Cliff-brake (Pellaea atropurpurea) which grows only in limestone, and the rare Lobed Spleenwort (Asplenium pinnatifidum), a hybrid between Walking Fern (Asplenium rhizophyllum) and Mountain Spleenwort (Asplenium montanum). We saw a tiny specimen of the Lesser Rattlesnake Plantain (Goodyera repens var. ophioides) and growing under some steps on the trail, a grass (Uniola latifolia) which is related to the sea otas. For a more familiar plant, who can forget walking through a bower of Carolina Rhododendrons with blooms ranging from white through pale pink. And there was lunch at the bottom of the waterfall with a fine view of the valley.

Chimney Rock Park is open from March through November, from 8:30 a.m. to 7:30 p.m. daily. Fees are $7.00 per day for adults, $4 for children 6-15 years of age and $12 for a season pass. Snacks are available at the Sky Lounge. A new attraction this year is the Nature Center developed by Elisabeth Feil. A nature trail guide is available with sequenced numbered stops beginning in the parking lot, proceeding to the Sky Line Trail and returning on the Cliff Trail. The park is well maintained and can be recommnded for the casual visitor and the naturalist.

*Manual of the Vasular Flora of the Carolinas, by Radford, Ahles and Bell, University of North Carolina Press 1968.

LOOK AGAIN !

Occasionally when keying out two plants that look almost identical we are surprised to discover that they are not close relatives within a single genus but actually belong to different families. This is the case with Aruncus dioicus, a member of the Rose Family and one of several plants known as Goat's-beard, and Astilbe biternata of the Saxifrage Family, which because of the resemblance is called False Goat's-beard.

Both species have serrate, biternately compound leaves and large panicles of tiny white flowers. Even at some distance, however, one clear difference can usually be discerned: the terminal leaflet on Astilbe is three-lobed whereas on Aruncus they are uniformly simple. Closer at hand, Astilbe can be seen, and felt, to have glandular hairs on the upper stem and in the inflorescence, as contrasted with the glabrous Aruncus.

ARUNCUS DIOICUS

These are short-cuts, of course, the classification of flowering plants being based for the most part not on such characters as leaf shape and pubescence but on similarities in floral structure which seem to imply ancestral kinship. This will be evident if we trace these two by means of a key, for it will tell us that, among other criteria, Astilbe flowers have ten stamens while the staminate flowers of Aruncus (it is dioecious) have at least fifteen and frequently more.

ASTILBE BITERNATA

Dick Smith

S H O R T I A

Vol. X, No. 3 Autumn 1988

A quarterly publication of the Western Carolina Botanical Club

Editor: Dorothy Rathmann Distribution: Frances Gadd

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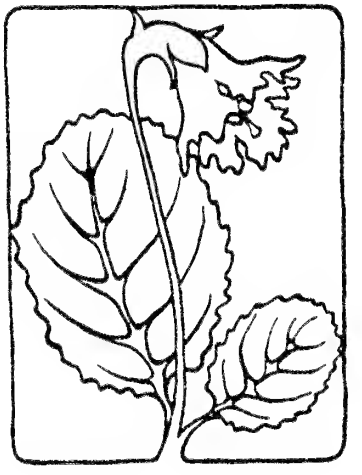
FIRST CLASS

SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB

WINTER 1988-89



DOROTHY RATHMANN, Editor

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Vice President:	Louise Foresman	Recorder:	Anne Ulinski
Secretary:	Charlotte Carman		

FROM THE PRESIDENT'S DESK.....Bill Verduin

Friendship is what it's all about. Yes, I am talking about the Botanical Club. Oh, I knew quite a few common wildflowers when I joined -- but now I'm on friendly terms with ever so many more. (Even on a Latin-name basis.) I had several favorite trails, but now I know a much larger number of "user-friendly" areas in our beautiful mountains.

But best of all, of course, are the many new friends among you, the members. You are a group of mighty fine people and it has been a great privilege to count many of you friends. To my fellow officers, to the many trail leaders, and to all of you a **hearty thanks** for all you do to make our hikes and meetings such friendly occasions.

And so to one and all, a **Merry Christmas**, and may the New Year bring many happy days for all of us "on the trail."

LOOK AGAIN! REPRINTS AVAILABLE

Last year, some WCBC members ordered a reprint collection of Dick Smith's LOOK AGAIN! pages. Millie Blaha tells us that she has nine extra copies of the collection at $3.25 each, including postage. If you want one, drop a note and check made out to: Millie Blaha, Drawer F, Cedar Mountain, NC 28718.

1988 MEMBERSHIP LIST

Hendersonville 28739 unless otherwise noted

ADDITIONS (*NEW MEMBER; +WINTER ADDRESS)

*Mathis, Mr. & Mrs. Harris, Rte. 4, Box 164A,
Mill Cove, Brevard,NC 28712 885-2764
+Rte. 2, Box 44, Jennings, FL 32053.....
*Pearce, Sr., James & Jean, PO Box 822, Flat Rock, NC 28731.. 692-3885
*Phillips, George W., PO Box 147, Flat Rock, NC 28731..... 693-4681
+Sawyer, Martin & Ruth, 2301 Fremont Drive, Sarasota, FL 34238...
*Tangert, Eugene & Elfriede, 619 Hidaway Cove..... 692-9909

NEW ADDRESSES

Krouse, Verna M., 580 Shuford Circle Drive, Newton, NC 28658..465-2209
Orchard, Neville & Beryl, 17 Skynka Trail, Columbus, NC 28722...
Wagner, Louis, 2601 Highway 64 E, Box 118..... 692-8713

LOUISE WAGNER MEMORIAL BOOKS

The Friends of the (Henderson Co.) Library recently acknowledged, with thanks, gifts in memory of the late Louise Wagner. According to Nancy G. Snowden, Adult Services Librarian, these gifts have been used to purchase the following books:

MARTY STOUFFER'S WILD AMERICA by Marty Stouffer
ON NATURE ed. by Daniel Halpern
WORDS FOR THE WILD: THE SIERRA CLUB TRAILSIDE READER ed. by Ann Ronald
WORDS FROM THE LAND ed. by Stephen Trimble
A BOOK OF BEES by Sue Hubbell
TREES OF THE SOUTHEASTERN UNITED STATES
THE MAN WHO PLANTED TREES; a story by Jean Giono
A SENSE OF THE MORNING by David Hopes

COMPUTER DISPLAY FOR THE UNIVERSITY BOTANICAL GARDENS .. Lowell Orbison

The two principal objectives of the University Botanical Gardens are to collect and preserve the native plants of the Southern Appalachian area and to display them for enjoyment and education.

To accomplish the first objective of collection and preservation requires continuous care of the collection in the Gardens and, simultaneously, the replacement of lost species and the seeking out and addition of new species to make the collection more nearly comprehensive. These activities are very demanding in terms of both time and knowledge.

The second objective, to display the plants, is intimately related to and dependent upon the first but, in addition, requires display of the plants in esthetically attractive ways so that the Gardens will be appealing to visitors. Unfortunately many plants are small and obscure so that obvious esthetic displays are not feasible. Thus, detailed knowledge of the location of these plants in the Gardens is necessary if they are to be identified, appreciated and studied.

The effort and dedication of the volunteers over the years in accomplishing these objectives has been indeed remarkable.

In 1975 Dr. Martin Wadewitz (1895-1985) and his committee on plant identification published a catalogue of the plants in the Gardens and a map of the Gardens divided into sections. With this catalogue and the map, a volunteer or a visitor could direct his search for a specific species to a section of the Gardens. However, these sections varied in size from about 100'x30' to 200'x200'.

Ten years later computers had been developed to where it was possible to put all of the information in the plant catalogue, as well as additional information, into the memory of the computer and, also, to produce a map for display on the computer monitor.

At that time, I proposed the development of a computerized map of the Gardens to the Computer Science Department at UNCA as a senior project for a computer science major. The suggestion was accepted by the Department and Mr. Jack Culbertson selected the project for his senior project. In the spring of 1986 Jack had developed a program and demonstrated its feasibility by preparing one section of the map and demonstrating it on the computer monitor.

Some time later when I had almost completed putting the data for the map in the computer, Dr. Michael Ruiz, Professor and Chairman of the Physics Department, happened by and expressed an interest in the mapping process. In our subsequent discussions he became interested in the whole display concept and offered to write a program to implement it. In the next few months Dr. Ruiz prepared a highly imaginative and sophisticated program. Not only was the map displayed but beside the map was a "window" in which the common names of plants was displayed in alphabetical order; in another "window" was shown the blooming dates and the botanical name of any plant selected; and finally the location of the plant on the map could be lighted. It was a highly successful effort to "display" the plants in the Gardens and to show their precise locations.

During the next several months I put the data into the computer basing its organization on the VASCULAR PLANTS OF THE CAROLINAS by Radford, Ahles and Bell. The data included the botanical names and common names of the plants, their blooming dates, their locations based on a grid covering the map so that each location had an x and y coordinate, and the sources of the plants if they were known.

This input of data was tedious and at times frustrating, yet it was also rewarding. The tediousness arose from the fact that each piece of data had to be entered precisely as it had been programmed and the slightest variation in sequence or punctuation would completely abort the program when I next tried to run it. The searching for such errors was a slow and frustrating part of the experience. The frustration was heightened by the fact that during the time I was inputting data the brand of the computer was changed four times with accompanying changes in commands. But through it all the gradual accumulation of data, its storage and ease of retrieval and the ability to display the precise location of a plant on the map made it all very rewarding.

The presence in the Gardens of 728 species, 427 genera and 129 families is the result of the work over the years of many dedicated volunteers. Ahead there is the challenge of adding to the collection to make it more nearly a complete representation of the plants of the Southern Appalachians and the Southeastern United States and to make their display readily available through the use of the computer.

PLANTS AS INSECTICIDES..... Elton Hansens

For centuries, some plants or parts of plants -- roots, leaves, stems, flowers, or seeds -- have been used against insect pests. Only in the present century have the actual toxic chemicals in plants been isolated and their chemical structures determined. In a few cases these toxic chemicals have been used either as ground up plant parts or as extracts of the toxic chemicals from the plants. These botanical insecticides became commercially available and were used for controlling insects in agriculture or specialty products such as household fly sprays. Commercial products came from six plant families and are nicotine in Solanaceae, pyrethrum in Asteraceae, derris and cube in Fabaceae, hellebore in Liliaceae, and ryania in the tropical Flacourtiaceae. Only pyrethrum is used in appreciable amounts today.

Pyrethrum, extracted from the dried flowers of Chrysanthemum cinerariaefolium, is a highly effective contact insecticide used in sprays or aerosols against aphids, houseflies and other pests. Pyrethrum breaks down quickly in sunlight and has ve . low toxicity in mammals. The crop is labor intensive for flowers must be harvested by hand when they have maximum pyrethrum content.

For nearly 30 years chemists sought to identify the insecticidal constituents of the flowers and, finally, isolated four related compounds which are insecticidal, namely, pyrethrin I, pyrethrin II, cinerin I and cinerin II. Of these cinerin I has the simplest structure. Following this break-through, chemists succeeded in synthesizing a safe and stable related compound which they named Allethrin. By 1951 Allethrin had reached the market and 10,000 lbs. of it was used in aerosol bombs.

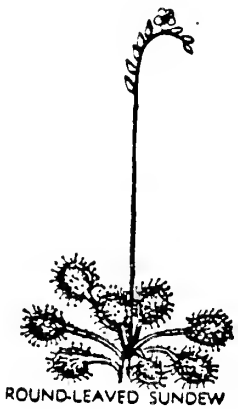
This success stimulated research for other related compounds and a number were synthesized. Among them was Resmethrin which has longer residual life and equal safety to Allethrin.

Hundreds of plants have been identified which have toxicity or repellency to insects. Most poisons are at concentrations too low for commercial development. However, plants find them useful as part of their arsenals against insects.

Some of the plants we in WCBC see regularly contain low levels of insecticidal compounds. These include ox-eye (Heliopsis helianthoides var. scabra), fly poison (Amianthium muscaetoxicum), bunch flower (Melianthium virginicum), hellebore (Veratrum album and V. viridis), Peruvian ground cherry (Nicandra physalodes), Virginia creeper (Parthenocissus quinquefolia), poison hemlock (Conium maculatum), and goat's rue (Tephrosia virginiana). Others recorded for North Carolina include crop plants such as pumpkin (Cucurbita pepo) and tobacco (Nicotiana sp.), ornamentals such as canna (Canna sp.) and castor bean (Ricinus communis) and trees and shrubs including China berry (Melia azedarach), American chestnut (Castanea dentata) and Hercules club (Zanthoxylum clava-herculis).

Individual species not indexed

HIGHLIGHTS OF SUMMER . . . . . ANNE ULINSKI recorder


ROUND-LEAVED SUNDEW

As June began, the pink-shell azaleas on Pilot Mountain, the lady's slippers at Kanuga, the trilliums, the violets, the anemones, the bellworts together with the cool days of spring faded into our memories and the hot, dry summer began. There were few respites, but we continued to search for plants, preferably in high places.

So we went to Richland Balsam, and to Craggy Gardens. We went to Big Butt where we found Indian paintbrush, wild geranium and the yellow Clintonia (Clintonia borealis). As we drove up the gravel road and through the gates to the tracking station on Sugarloaf Mountain we saw goat's-beard, wild yam, fawn's breath, spiderwort. We drove to Roan Mountain to search for and find Gray's lily (Lilium grayi), the white cinquefoil (Potentilla tridentata), the rare Robbin's ragwort (Senecio robbinsii) and Mitchell's St. John'swort (Hypericum mitchellianum).

Ben Tullar and Bud Pearson took 23 of us to Daniel Creek where some old favorites were spotted: Yellow star-grass, enchanter's-nightshade, sabatias or marsh pink, and Deptford pink. The woods were delightfully cool the day we went to Bear Pen Gap. The area near the trail had been burned out by a forest fire a few weeks earlier, but a back-fire had protected the trail itself including the numerous plants of umbrella leaf with their leaves grown to an enormous size. At the top of the trail, as we came out into the high meadow, we walked through a field of phlox in full bloom to a rock outcrop where we had our lunch.

In August, Bill Verduin and Ivan Kuster took us on a day trip to the Black Camp Gap area which included Heintooga and the meadow near the Masonic Monument. We saw the rare Rugel's ragwort (Senecio rugelia) at Heintooga, and open fields full of wildflowers at the meadow beyond the Masonic Monument. Again we found the orange-fringed orchids although not as numerous as the previous year.

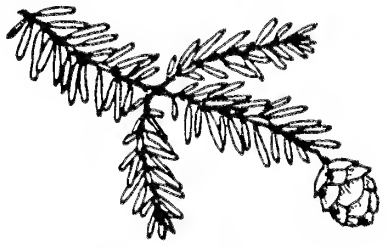
Those who were fortunate enough to tour the N.C. Mountain Horticultural Crops Research Center, heard Dr. Stewart Warren speak about herbicides, ground covers to control erosion, and research projects in progress at the Center. There was a tour of some of the experimental plots, and lunch in an air-conditioned conference room.

Then came the time for gentians, grass of parnassus, sundews and ladies'-tresses, and we drove to the Parkway to search for them. With Millie Pearson, we went to the rock cliffs across from Log Hollow Overlook, then to an area on Rt. 215 and finally to the rock faces past the Herrin Knob Overlook. Although the rocks were drier than usual, we found the plants we hoped to see, and many others.

The summer would not have been complete without the composites. We looked at hairy stems, glands on bracts, basal leaves (when we could find them) disc and ray flowers (fertile and otherwise), and struggled with the keys. If the words Helianthus, Heterotheca, Hieracium and Heliopsis made your head swim, you could close your book, step back to enjoy the profusion of gold and purple flowers, breathe in the cool air and be content to be in the Blue Ridge Mountains on a fine summer day.

LOOK AGAIN !

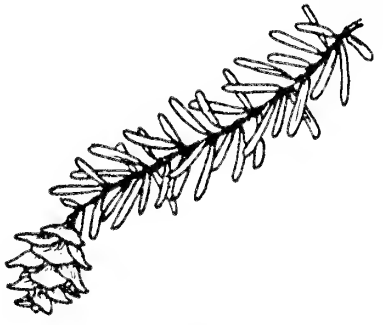
To most of us a hemlock is a hemlock, and if we don't push it too far we are correct. At least we learned long ago that the tea that did Socrates in was not made from the familiar evergreen tree but from a very different plant belonging to the Parsley Family--Poison Hemlock, or Conium maculatum.



T. CANADENSIS

It is, in fact, possible to brew a perfectly harmless tea from the needles of a hemlock tree, and although it is claimed to have a high Vitamin C content it can hardly be recommended for pure enjoyment unless one happens to like the taste of Christmas trees.

Actually, there are more than a dozen species of Tsuga, or true Hemlock (unlike most generic names, which are derived from Greek or Latin, this one is Japanese). Of the two in our area, Eastern Hemlock (T. canadensis) is by far the more widespread, extending all the way into southern Canada. It is the one best known to us, a graceful, bluish-green tree with feathery, softly drooping branches. The individual needles are flat, and although they are attached spirally to the twigs they are twisted at the base so that they extend outward in two opposite ranks, except for a few that lie upside-down along the top. The cones of Eastern Hemlock have thin woody scales and are quite small, seldom exceeding three-quarters of an inch in length.



T. CAROLINIANA

Confined to the mountains of North Carolina and adjacent states, and nowhere abundant, is the Carolina Hemlock (T. caroliniana). It is a brighter green in color, and the needles, which are longer than those of Eastern Hemlock, project from the twig in all directions instead of lying in flat sprays. The cones are an inch or more long, with scales that spread widely at maturity.

Dick Smith

S H O R T I A

Vol. X, No. 4 Winter 1988 - 89

A quarterly publication of the Western Carolina Botanical Club

Editor: Dorothy Rathmann Distribution: Frances Gadd

Please submit contributions for next issue by February 15, 1989 to:
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Carolina Village Box 23
Hendersonville, NC 28739

Dues: $8.00 per year (includes all members of immediate family).
Make check payable to Western Carolina Botanical Club and send to
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